

## ABSTRACT

This invention provides a method for selecting a clone of an ES cell containing a mutation in a gene that is expressed in a test cell comprising: (a) providing cDNA obtained  
5 by reverse transcription of mRNA of the test cell; (b) providing a collection of cultured ES cells organized into individual clones, wherein each clone is of an ES cell having a mutation in an exon in its genome, the mutation being in a different exon in cells of different clones; (c) providing an array of different single stranded polynucleotides, the polynucleotides being fragments of exons containing mutations in (b); (d) exposing the cDNA to the array under  
10 conditions permitting hybridization of polynucleotides in the array to nucleic acids; (e) detecting hybridization of cDNA to a polynucleotide on the array; and, (f) selecting a clone in the collection from which a hybridizing polynucleotide detected at (c) is an exon fragment. This invention also provides a system for testing expression of a gene in a test cell. Also provided is a preferred exon trap vector for mutating ES cells.